

NATIONAL BUREAU OF STANDARDS REPORT

NBS PROJECT

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Progress Report

"Hazardous Combustible Characteristics of Cabin Materials"

January to March 1968

by

Daniel Gross

FAA Project No. 510-001-11X

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U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

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Smoke and Toxic Gases

Cooperated in interlaboratory comparison of Radiant Panel test method with Boeing and NAFEC on four materials (plus standard hardboard).

Cooperated in interlaboratory comparison of NBS Smoke Chamber test method with Douglas and Rohm & Haas on seven materials.

The final report was prepared and NBS editorial review was initiated prior to publication as an FAA report.

Model Enclosures

Under radiant heating exposure, and using two types of wall lining materials, measurements were made of the time to initial flame occurrence and other characteristics of flame development in the asbestos-walled model enclosure. Approximately 40 tests were conducted. The effects of (a) ventilation opening size and (b) thermal insulation of walls, were explored.

The preliminary findings indicate that:

- (1) the time to appearance of flames occurs at very small ventilation openings and this time does not change appreciably until the opening becomes sufficiently large, whereupon ignition time increases materially.
- (2) The combustible wall surface reaches a characteristic temperature immediately prior to ignition. In a highly insulated enclosure, flames appear earlier, but the surface temperature is approximately the same.
- (3) The addition of a sufficient quantity of foam rubber fuel produces ignition of gases at a much earlier time.

